



Alstead, 2014

# Developing Wetland-Specific Water Quality Standards

**WWQSS**

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# Background

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- Env-Wq 1700 does not include wetland-specific numeric biological criteria to assess the condition of wetlands.
- DES received an EPA Wetlands Program Development Grant in Oct 2011.
- A grant deliverable is the preparation of a plan to develop water quality standards for wetlands (due June 30, 2015).



Green's Grant 2014



# Information Reviewed

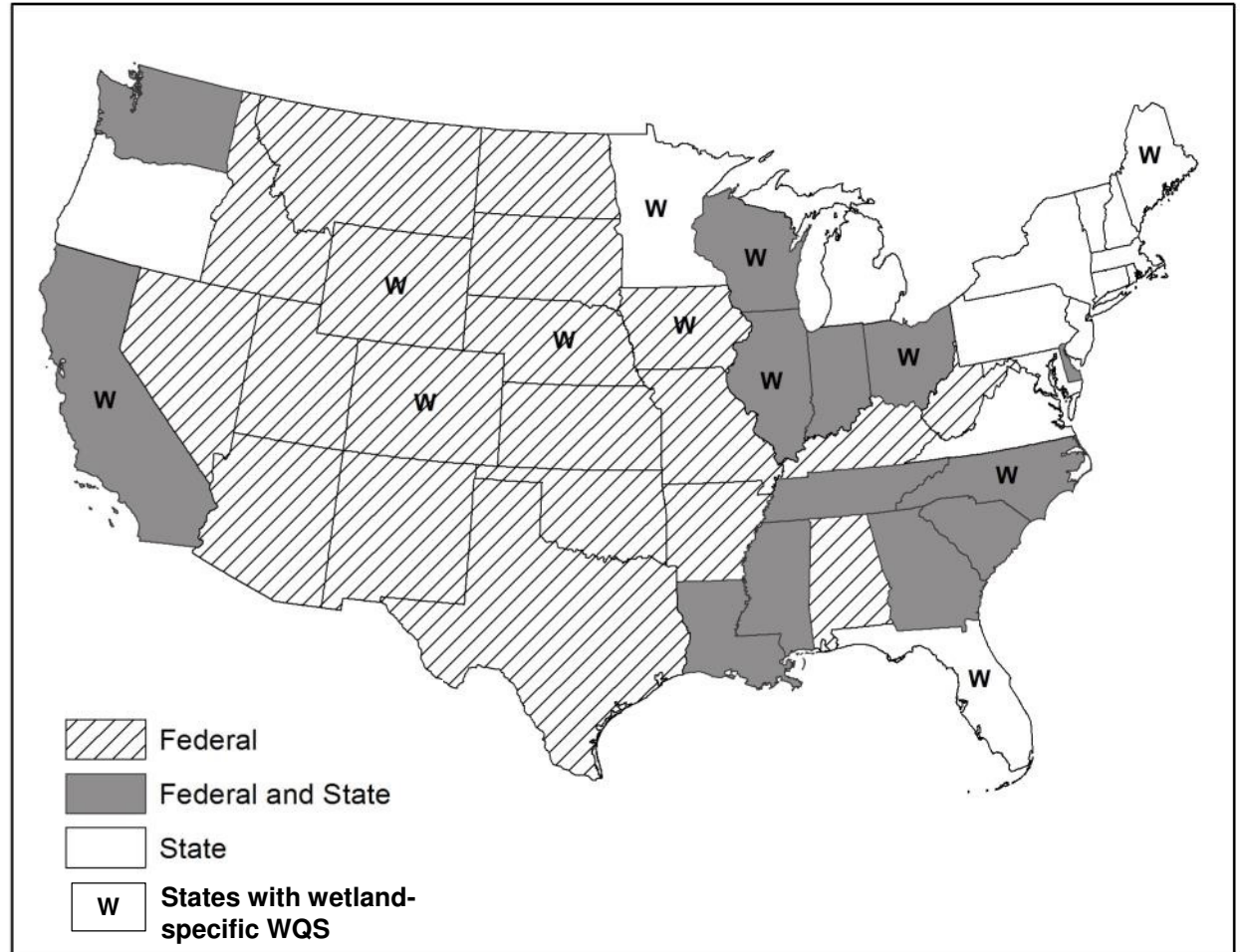
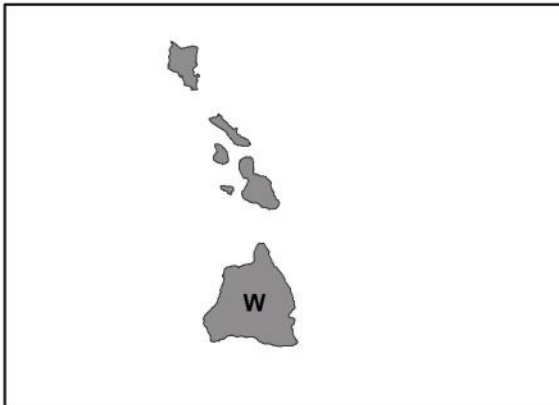
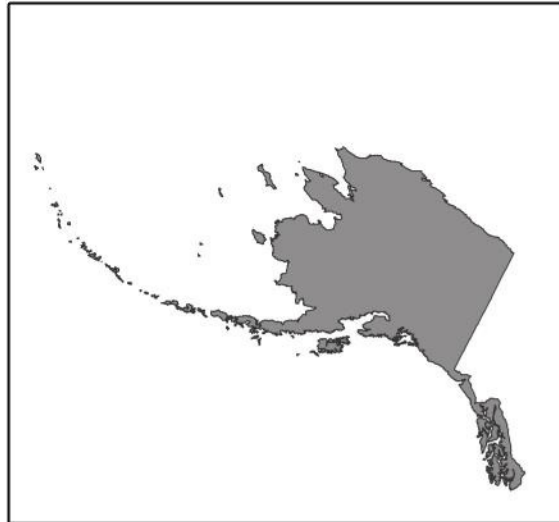
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- State programs
  - Online, in person, by email and phone
- Environmental Law Institute
- Association of State Wetland Managers
- USEPA
  - Guidance
  - Workgroup to create a narrative criteria template for wetland water quality standards (underway)
- Scientific literature
  - Journal papers
  - Reviews
  - Reports



Marlow, 2014

# Who has WWQS and what do they look like?



# States Highlighted

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- Maine
  - Biomonitoring of fringing wetlands
  - Aquatic life use – Macroinv & algae
  - Incorporate water quality issues into state permitting
- Minnesota
  - Biomonitoring of depressional wetlands
  - Aquatic life use – Macroinv & vegetation (FQA)
- Ohio
  - Permitting – ORAM and VIBI-FQ
  - Wetlands designated use
  - Mitigation success evaluation (VIBI-FQ and AmphIBI)

# Wetland Mapping

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- Extent of resource
- NWI maps from 1980s aerial imagery
- Most consistent spatially but outdated
  - Development
  - Natural succession
  - Technology



# Water Quality Standards for Wetlands

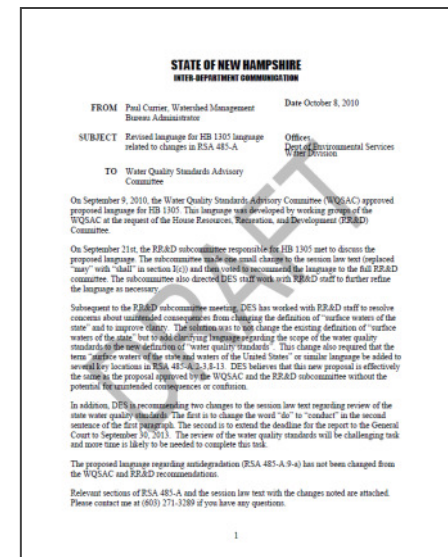
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- Three parts
  - Designated uses/classification
  - Criteria
  - Antidegradation



# Wetlands as Waters Subject to WQS

- Ensure that water quality standards can be applied to wetlands (statute and rules).
  - Regulations (Env-Wq 1700) apply to wetlands included under “waters of U.S”. Statute is not so clear.
  - Use work done by Paul Carrier and WQSAC subcommittee (2010) for suggested changes to statute (RSA 485).
    - Definition of “water quality standards”
    - Definition of “waters of the U.S.”



# Designated Uses: Goals

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- Designated use(s) for wetlands
  - Use work done by designated uses workgroup (2011).
  - Work is underway to add to rule (Env-Wq 1700) in 2016.
  - Public hearing on rules anticipated in fall 2015.



# Designated Uses

Use Type	Proposed Designated Uses	Applicability
Recreation in and on the water	Swimming and Other Recreation in and on the Water	Applicable to All Surface Waters
	Fish Consumption	
	Shellfish Consumption	
Protection and Propagation of Fish, Shellfish, and Wildlife	Aquatic Life Integrity	
	Wildlife	Applicable to Some Surface Waters
Public Water Supplies	Potential Drinking Water Supply After Adequate Treatment	

# Current Narrative Criteria for Wetland Assessment

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## **Env-Wq 1703.02 Wetlands Criteria**

(a) Subject to (b) below, wetlands shall be subject to the criteria listed in this part.

(b) Wherever the naturally occurring conditions of the wetlands are different from the criteria listed in these rules, the naturally occurring conditions shall be the applicable water quality criteria

## **Env-Wq 1703.19 Biological & Aquatic Community Integrity**

(a) The surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

(b) Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function.

# Classification

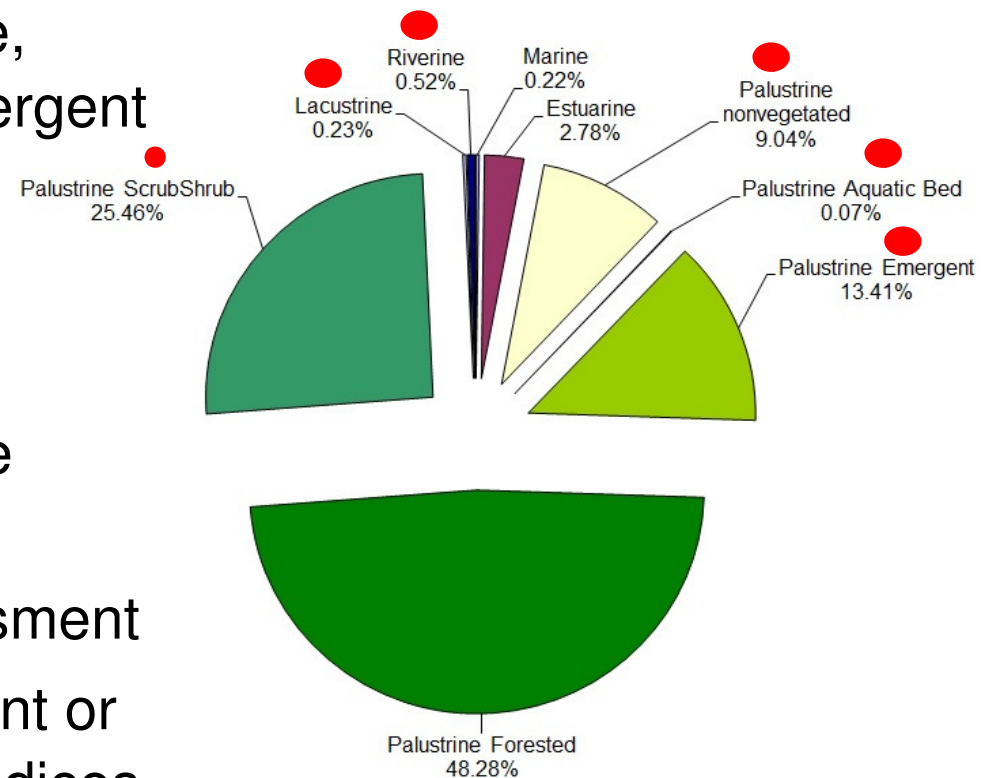
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- Classification
  - Two-tier system (Class A and B) has previously been identified as needing improvement.
  - Address in the future, if and when changes are considered for general surface waters.

# Develop Numeric Biological Thresholds (1)

Initial focus on thresholds for:

- Open water wetlands (riverine, lacustrine, and palustrine emergent wetlands: (23-48%))
- Aquatic Life Use
- Indicators
  - Macroinvertebrates (where open water present)
  - Ecological Integrity Assessment
  - Floristic Quality Assessment or other vegetation metrics/indices



# Develop Numeric Biological Thresholds (2)

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- Continue monitoring wetlands for initial assemblages/indicators.
- Sample wetlands that represent a gradient of disturbance to enable the establishment of thresholds (numeric translations of narrative criteria).
- Establish interim thresholds for assessments.



New Boston, 2014

# Antidegradation – Outstanding Resource Waters

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Currently limited to:

- Natural segments of designated rivers
- Waters within the White Mountain National Forest
- Should other waters/wetlands receive this protection/designation?



Green's Grant 2014

# Interim Step – Baseline Wetlands Data

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- RSA 485-A:12, III and IV regarding Water Quality Certifications (WQC) allow DES to include monitoring conditions to ensure water quality standards are met.
- Need guidance for collecting baseline wetlands data
- Not all WQCs will need baseline wetlands data – guidance should address this.
- Require WQC applicants to implement guidance once developed.

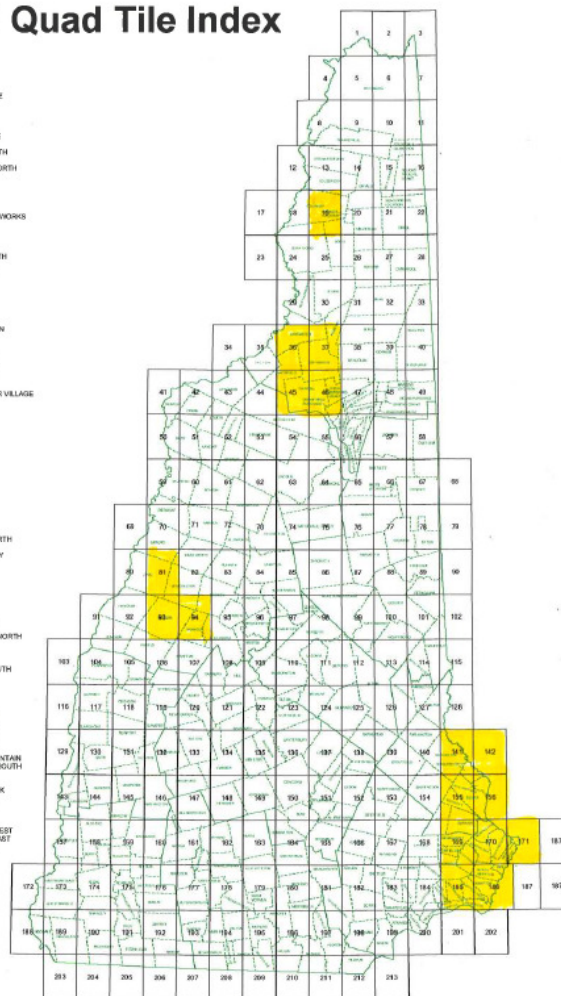
# NWI Mapping

Seek funding to update NWI maps to:

- More accurately represent the resource,
- Facilitate ability to do probabilistic assessments in the future.
  - Not a substitute for sampling to assess individual wetlands.

## GRANIT 7.5' Quad Tile Index

1	ORFELY BROOK	188	DANBURY
2	PROSPECT HILL	189	BARTON
3	MOORE BOB	190	WINDHAM LAKE
4	WELLS MOUNTAIN	191	LACINA
5	COMENHILL	192	WEST ALTON
6	SECOND CONNECTICUT LAKE	193	WOLF BROOK
7	RUMP MIN	194	SANDORVILLE
8	PITTSBURG	195	GREAT EAST LAKE
9	LAKE FRANGE	196	WINDSOR
10	MACALLUM MOUNTAIN	197	CUMMINGTON NORTH
11	ROSELICK MTN	198	GRANTHAM
12	MONADNOCK MTN, VT. NH	199	SUMMIT LAKE NORTH
13	LOVERING MOUNTAIN	200	ANDY LONDON
14	GRAND POOL	201	ANDOVER
15	MOUNT PEGAH	202	FRANKLIN
16	WALTON MILLS	203	NORTHFIELD
17	BLOOMFIELD	204	BEACHT
18	THUNDERVILLE	205	GRANTHAM FORK WORKS
19	BLUE MOUNTAIN	206	ALTON
20	DALE KETCH	207	FARMINGTON
21	GRACE	208	MILTON
22	UNAMUCK LAKE NORTH	209	SPRINGFIELD
23	WADSWORTH LAKE	210	CLAREMONT SOUTH
24	STRATFORD	211	NEWPORT
25	PERCY PLAGE	212	SUMMIT LAKE
26	CLANBURY POND	213	BRAND
27	TEAETTES RIDGE	214	WARRER
28	UNAMUCK LAKE SOUTH	215	WEBSTER
29	GRANVILLE	216	PERCOCOCK
30	STARK	217	LOACON
31	WEST MILAN	218	PITTSFIELD
32	MILAN	219	PANDER MOUNTAIN
33	SUCCESS POND	220	BARTON LAKE
34	WILIS POND	221	ROCHESTER
35	LANCASTER W	222	SCHEMUSWORTH
36	LANCASTER E	223	BELOW FALLS
37	PLYMOUTH W	224	ALSTEAD
38	PLYMOUTH E	225	EAST COMPTON
39	BERLIN	226	WINDSOR
40	SHILLBINE	227	WILSON AFTER VILLAGE
41	BARNETT E	228	RENNER
42	LOWER WATERFORD	229	WINDSOR
43	LITTLETON	230	CONCORD
44	BETH BRIM	231	SUNDOCK
45	BETHLEHEM	232	GOSSVILLE
46	MT WASHINGTON W	233	NORTHWOOD
47	MT WASHINGTON E	234	BARRINGTON
48	CARVER COVE	235	DOVER WEST
49	WILD RIVER	236	DOVER EAST
50	WOODVILLE	237	WALPOLE
51	LIBON	238	GRISAM
52	SUGAR HILL	239	MAKON
53	FRANCIS	240	STODARD
54	SOUTH TOWN	241	HALLSBROOK
55	CRAWFORD NOTCH	242	DEERING
56	STARR MOUNTAIN	243	WELLS
57	JACKSON	244	GORTFORD
58	CHATHAM	245	MINDENNOTH
59	NEWBURY	246	CARCA
60	EAST HANDELL	247	MT FANLUCKWAY
61	MT MIDDLEBURY	248	SPRING
62	LINCOLN	249	NEWBURY
63	MT GOSSEL	250	PORTSMOUTH
64	MOUNT GARRISON	251	PUTNEY
65	BARTLEY	252	SPOTFORD
66	NORTH COMWAY WEST	253	KESNE
67	NORTH COMWAY EAST	254	MINDENBROUGH
68	FAIRLEE	255	DUBLIN
69	PERMONT	256	MT FANLUCKWAY NORTH
70	HARRIS	257	GREENFIELD
71	WINDSOR	258	PRINCEVILLE
72	WOODSTOCK	259	MINCHESTER SOUTH
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June, 2005

Mapped Since 2004

# NWIPlus Mapping

Examples of application of LLWW descriptors to nontidal wetlands.

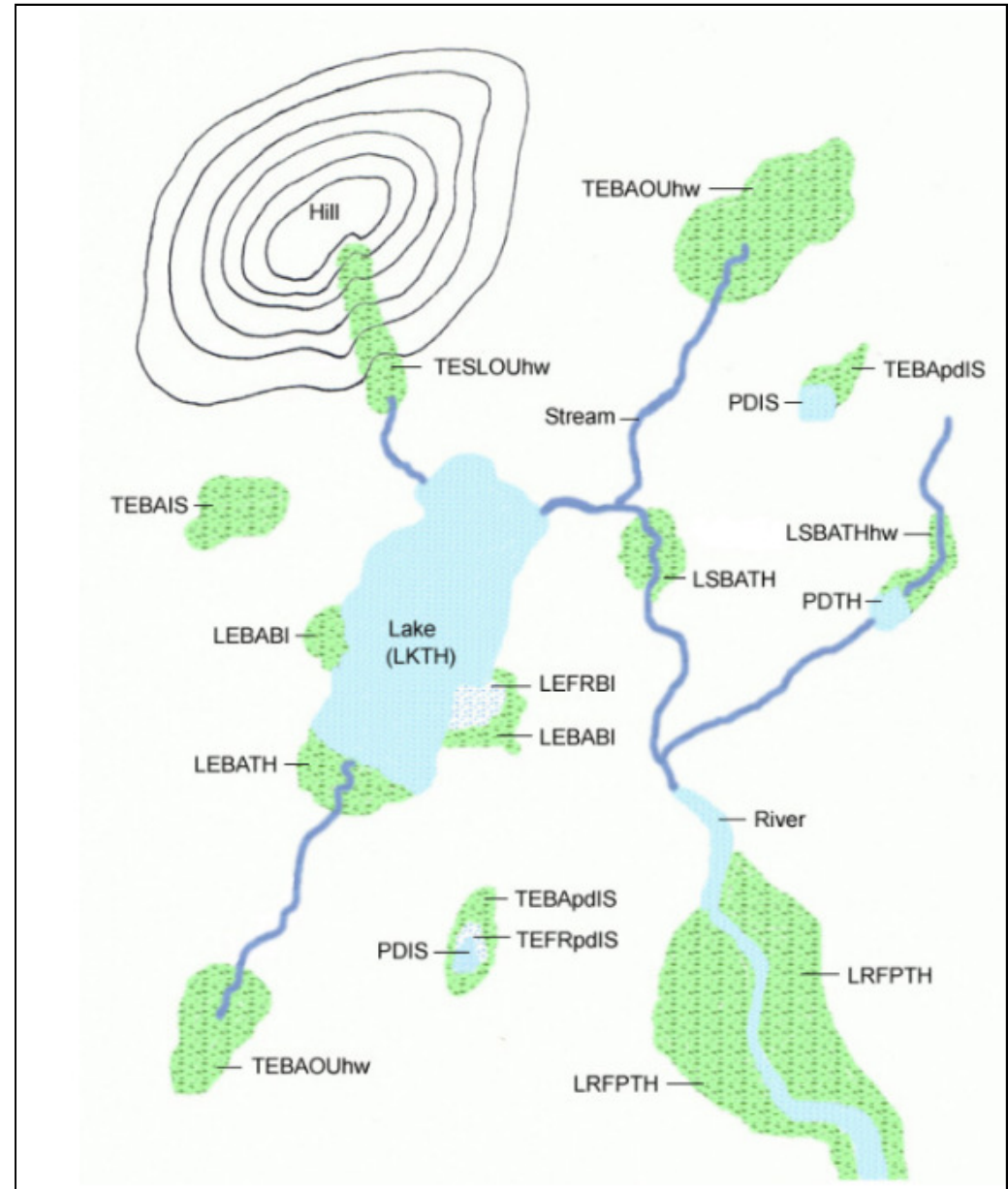
**Landscape position** = LE – Lentic, TE – Terrene, LR – Lotic River, LS – Lotic Stream;

**Landform** = BA – Basin, FP – Floodplain, FR – Fringe, SL – Slope;

**Water Flow Path** = BI – Bidirectional-nontidal, IS – Isolated, OU – Outflow, TH – Throughflow;

**Water body type**: PD – Pond, LK – Lake, hw – headwater, and pd – pond-bordering wetland.

**Note:** Examples of how the code is used: TEBAIS—Terrene basin isolated; LSBATH—Lotic stream basin throughflow; and LEFRBI—Lentic fringe bidirectional-nontidal



# Summary (1)

Goal	Task Description	Participants	Timeframe
<b>Clarify in statute that wetlands are addressed by surface waters definition</b>	Amend 485-A to seek definitional changes to ensure coverage of wetlands by water quality standards (see Section 5.1)	Legislative change – seek sponsor in legislature	Within 5 years
<b>Ensure designated use(s) include wetlands and are appropriate</b>	Amend Env-Wq 1700 to include designated uses approved by the WQSAC in 2012. (see section 5.2)	DES, WWQSS, WQSAC and public	Within 2 - 5 years
<b>Collect baseline data on potentially impacted wetlands in § 401 Water Quality Certification (see section 5.3.3)</b>	Develop and implement guidance to collect baseline data on wetlands potentially impacted by projects that require § 401 Water Quality Certification (see section 5.3.3)	DES, WWQSS, WQSAC	Within 5 years

# Summary (2)

Goal	Task Description	Participants	Timeframe
<b>Inclusion of other waters as Outstanding Resource Waters (ORWs)</b>	Determine interest, and if so, develop and begin implementation of process for nominating other surface waters – including wetlands – as ORWs in Env-Wq 1708.05(a). (see section 5.5)	DES, WWQSS, WQSAC	Within 5 - 10 years
<b>Develop Numeric Thresholds for Aquatic Life in Wetlands with Open Water</b>	Complete sampling of macroinvertebrates and vegetation; apply EIA, FQA and run macroinvertebrate data through Maine's model. Analyze data to develop indicator thresholds. (see section 5.3.2)	DES, NHB, Maine DEP; EPA for funding; WWQSS, WQSAC.	Within 5 - 10 years
<b>Develop Numeric Thresholds for Aquatic Life or Wildlife in other Types of Wetlands</b>	Develop numeric thresholds for aquatic life or wildlife in other types of wetlands with the next focus likely to be thresholds for wildlife support in palustrine forested wetlands. (see section 5.3.2)	DES, EPA for funding, NHB WWQSS, WQSAC and others to be determined	Beginning in approximately 5 years and continuing after that.

# Summary (3)

Goal	Task Description	Participants	Timeframe
<b>Use Thresholds for Assessments</b>	Include defensible thresholds in the Consolidated Assessment and Listing Methodology and use for making assessments. (see section 5.3.2)	DES	Beginning in 5-10 years and continuing after that as new thresholds are developed.
<b>Adopt numeric thresholds as criteria in Env-Wq 1700</b>	Propose adoption into regulation (Env-Wq 1700) of defensible numeric thresholds that have included in the CALM and successfully used for assessments. (see section 5.3.2.)	DES, WWQSS, WQSAC and public	After thorough evaluation
<b>Update wetlands mapping</b>	Seek funding and update the NWI wetlands mapping. (see section 5.5)	DES, EPA	Within 5 - 10 years

# Next Steps

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- Obtain and review comments
- Incorporate comments
- Finalize and submit to EPA (by June 30, 2015)



Whitefield, 2014